AMENDMENTS TO THE SPECIFICATION WITH MARKINGS TO SHOW CHANGES MADE

Please amend paragraph [0003] as follows:

[0003] -- As disclosed in DE 42 06 092 C1, a particularly low intermodulation can be achieved by soldering the end section of a connector housing to the outer conductor of the coaxial cable. For soldering, the end section of the connector housing is positioned on the end of the outer conductor of the cable and heated, for example, by a pair of pliers surrounding the end section of the connector housing or through induction. The solder in the form of a solder wire is supplied manually through bores in the end section of the connector housing into the gap between the inner wall of the recess of the end section of the connector housing and the outer conductor of the cable. This installation method for the connector on the cable requires special tools and considerable experience and can only be successfully done in the factory with cables having a maximum diameter of 13 mm (1/2"). This makes it almost impossible to attain a connection with a low intermodulation by mechanically contacting and clamping at least the outer conductor of the cable in the field, i.e., during installation by the user and at the installation site. --

Please amend paragraph [0009] as follows:

[0009] -- If an inner ~~connector~~ conductor of the connector is to be soldered to the inner cable conductor, then the cable end is prepared for installation by

having the inner cable conductor protrude over the end of the outer conductor of the cable by a distance that is equal to approximately two diameters of the inner conductor. In this way, the connection between the inner connector conductor and the inner cable conductor is established first. Subsequently, the end section of the connector housing is pushed over the cable, including the inner ~~connector~~ conductor of the connector, and subsequently heated to solder the end section of the connector housing to the outer conductor of the cable. --

Please amend paragraph [0011] as follows:

[0011] -- Advantageously, the solder reservoir (reservoirs) is (are) disposed in a circumferential groove provided in the wall of the recess. This keeps the solder reservoir in place before the soldering operation and permits a smaller ~~the~~ solder gap. Typically, two solder reservoirs that are separated in the axial direction are sufficient. --

Please amend paragraph [0025] as follows:

[0025] -- In particular, the inner conductor of cables with a large diameter can be formed as smooth, ring-like or helical corrugated tube. In this case, the inner ~~connector~~ conductor of the connector can have slots that are elastic in the radial direction, with the inner conductor having least one solder reservoir to facilitate soldering. Providing the inner ~~connector~~ conductor of the connector with slots serves the same purpose as making the wall of the recess of the end section of the connector housing elastic in the radial direction. In this way, tolerances and

roundness errors of the inner cable conductor can be compensated, while heat is transferred efficiently and rapidly from the inner cable conductor positioned on the outside - through which heat is supplied - to the inner conductor of the connector positioned on the inside. --

A4 cont.

Please amend paragraph [0027] as follows:

[0027] -- According to another embodiment, the wall of the end section of the connector housing can have openings through which molten solder can be supplied to the circumferential gap located between the outer conductor of the cable and the inner wall of the recess. The solder operation can also be visually monitored through these openings, wherein the number and location of the openings depend on the girth of the cable. --

A5

Please amend paragraphs [0045] - [0047] as follows:

[0045] -- Turning now to the drawing, and in particular to FIG. 1, there is shown ~~a.~~ a coaxial cable with ~~includes~~ a tubular inner conductor 1 which can be corrugated and formed as a helix; a dielectric 2 which frequently consists of an expanded foam with a low melting point; an annularly corrugated outer conductor 3 or alternatively, a helically corrugated outer conductor 4, as depicted in FIGS. 7 and 8; a cable jacket 5; and an inner ~~connector~~ conductor 10 of the connector which can be formed as a pin and or a jack on the side facing the plug, as depicted in FIG. 2. Both the inner conductor and the outer conductor of the coaxial cable can be soldered to a connector according to the invention. For this

A6

purpose, the dielectric 2 and the outer conductor of the cable 3 are recessed with respect to the inner cable conductor 1 by a distance equal to approximately twice the diameter of the inner conductor 1 and cut approximately at the height of a valley of the ring-shaped corrugation. The cable jacket 5 is recessed even further.

[0046] Referring now to FIG. 2, the outer profile of the inner conductor 10 of the connector which is complementary to the helical corrugation of the inner cable conductor 1, is screwed into the inner conductor 1 until it reaches a stop of a ring-shaped collar 10a disposed on the front edge of the inner cable conductor 1. On the side of the ring-shaped collar 10a facing the cable, the inner ~~connector~~ conductor 10 of the connector has an annular groove in which a solder wire 20 is inserted. The depth of the annular groove is approximately equal to or somewhat smaller than the diameter of solder wire 20. The solder wire 20 therefore contacts the inner wall of the inner conductor 1 of the tubular cable. The solder wire 20 melts when the inner cable conductor 1 is heated with an external heat source, and the solder flows at least in the front section of the inner cable conductor 1 into the gap between the inner conductor 1 and the portion of the inner ~~connector~~ conductor 10 of the connector that is surrounded by the inner cable conductor 1.

[0047] Referring now to FIG. 3, the end section of the connector housing 11 is then pushed onto the outer conductor of the cable 3 until a step 10e formed on the inner ~~connector~~ conductor 10 of the connector contacts an insulating support 12 which supports the inner ~~connector~~ conductor 10 of the connector. These

components and a threaded sleeve 13 are known in the art and are of no further interest for the present invention. On the cable side of the insulating support 12, the end section of the connector housing 11 has an recess adapted to receive the end portion of the coaxial cable. A first region 14a of the recess has a relatively thick wall to provide mechanical stability. Adjacent to the region 14a is a ~~this~~ second, significantly thinner wall region 14b with a stepped diameter at 14c to prevent a discontinuity in the characteristic impedance. The wall 15 of a thin-wall region 14b of the recess 14 has several slots 16 which originate at a front edge 17 facing the cable side of the end section of the connector housing 11. To provide rigidity, the front edge is continuous. The slots 16 extend in the axial direction to the beginning of the thick-wall region 14a. The width of the slots 16 increases in the region 16a, where the slots 16 cover the outer conductor of the cable 3. Optionally, only every other slot may have an increased slot width. In region 16a, two annular grooves are machined on the inside of the wall 15 with an axial spacing equal to the distance between peaks of the corrugation of the outer conductor of the cable 3. Each of the annular grooves holds a solder wire ring 21. Facing the plug side from the diameter step at 14c, the wall 15 has two axially spaced annular shoulders, each having an axial groove adapted to receive an additional solder wire ring 22. The inner diameter of the recess 14 facing the cable side of the diameter step 14c is selected so that the solder wire rings 21 which have identical axial spacing, contact the crests of the corrugation over the entire circumference at least approximately, even if the outside diameter of the outer conductor of the cable 3 is at the lower tolerance limit. The slots 16 which

are elastic in the radial direction provide a sufficiently resilient contact between the wall 15 and the outer conductor of the cable 3 in situations where the outer conductor of the cable is not circular or has a diameter at the upper tolerance limit. At least the wall 15 can be made of a suitable springy material, such as brass or bronze with a copper base. --

Please amend paragraph [0057] as follows:

[0057] -- FIGS. 7 and 8 show a partial sectional view of another embodiment of a connector adapted for installation on a coaxial cable with a helically corrugated outer conductor 4. Accordingly, the wall 15 has a helical profile which has a helical corrugation that matches the corrugation of the outer conductor of the cable 4. The solder reservoirs on the inside of the wall 15 are implemented as solder wire rings 25 (see FIG. 7) received in grooves 25a (see FIG. 8). The solder reservoirs extend along the helical corrugation so as to contact the entire circumference of the outer conductor of the cable 4 at at least one location, so that the outer conductor of the cable 4 is completely soldered two-dimensionally to the wall 15 after the solder reservoir melts. This situation is depicted in FIG. 8. --

Please amend paragraph [0061] as follows:

[0061] -- FIGS. 11 and 12 depict in an enlarged scale an exemplary inner conductor 10 of a connector (see also FIG. 2), which can be inserted into, for example, a smooth-walled hollow inner cable conductor (not shown). The section

10b (see FIG. 11) of the inner conductor 10, which engages with the inner cable conductor, has axial slots 10c, rendering the section 10b elastic in a radial direction, thereby providing an excellent heat transfer to the inner cable conductor and hence also to the solder reservoir 20 implemented as a solder wire ring. The annular shoulder 10a is discontinuous with recesses 10d~~, as depicted in~~ (see FIG. 12), which facilitate observation of the solder operation, whereby a portion of the molten solder can egress into the circumferential facet 10f. --

A8 cont.

AMENDMENTS TO THE CLAIMS WITH MARKINGS TO SHOW CHANGES MADE, AND LISTING OF ALL CLAIMS WITH PROPER INDENTIFIERS

1. (Currently amended) A coaxial connector adapted to be soldered to a coaxial cable, comprising:

- a connector head housing with a recess having a wall with slots so as to be elastic in a radial direction, the recess adapted to receive, contact and clamp an end portion of an outer conductor of the coaxial cable, ~~and~~
- an inner ~~connector~~ conductor of the connector for contacting an inner conductor of the coaxial cable, and
- a solder reservoir with solder disposed on an inside surface of the wall of the recess at least in a region of the wall of the recess corresponding to a prescribed position of a front edge of the end portion of the outer conductor of the coaxial cable,
- wherein an inside diameter of the recess is equal to a smallest outside diameter of the outer conductor of the coaxial cable.

Claims 2 and 3. (Canceled)

4. (Currently amended) The connector of claim 1, wherein at least a first section of the wall of the recess where the end portion of the outer conductor of the coaxial cable is received, has a reduced wall thickness as compared to a remaining section of the wall of the recess.

5. (Currently amended) The connector of claim 1 ~~3~~, wherein the solder reservoir is arranged ~~in form of~~ as a circumferential groove disposed in the wall.

6. (Currently amended) ~~The connector of claim 1,~~ A coaxial connector adapted to be soldered to a coaxial cable, comprising:

- a connector head housing with a recess having a wall with slots so as to be elastic in a radial direction, the recess adapted to receive an end portion of an outer conductor of the coaxial cable~~,~~ and having an inside diameter that is equal to a smallest outside diameter of the outer conductor of the coaxial cable,
- an inner ~~connector~~ conductor of the connector for contacting an inner conductor of the coaxial cable,

wherein the wall of the recess includes openings distributed about a circumference of the wall of the recess for visually monitoring a soldering operation between the coaxial connector and the coaxial cable.

7. (Currently amended) The connector of claim 1 ~~3~~, wherein a width of the slots is selected so that capillary action causes the solder to flow into the slots independent of an orientation of the coaxial connector.

8. (Currently amended) The connector of claim 1 ~~3~~, wherein at least one additional solder reservoir is arranged on an outside surface of the wall of the recess and at a height of the slots.

9. (Currently amended) The connector of claim 1 ~~3~~, wherein at least a portion of a length of the slots is surrounded by a sleeve adapted to be soldered to the wall of the recess.

10. (Currently amended) The connector of claim 9, wherein the sleeve is pressed on the connector head housing in a predefined position so as to cover the slots in the wall of the recess at least over a portion of the length of the slots.

11. (Currently amended) The connector of claim 9 ~~8~~, wherein a further solder reservoir is disposed in an outside annular shoulder of the wall of the recess and the sleeve contacts the further solder reservoir.

12. (Original) The connector of claim 9, wherein the sleeve is positively-locking connected with the connector head housing.

13. (Original) The connector of claim 12, wherein the sleeve is screwed onto the connector head housing.

14. (Original) The connector of claim 9, wherein the sleeve has a ring-shaped inner groove located at least at a height corresponding to a height of end portions of the slots and adapted to receive an additional solder reservoir.

15. (Currently amended) The connector of claim 1, wherein ~~a~~ the solder reservoir is formed as ~~in the form of~~ a solder foil ~~is~~ and disposed between a ~~wall~~ surface of the wall of the recess facing the end portion of the outer conductor of the coaxial cable and the end portion of the outer conductor.

16. (Currently amended) The connector of claim 1, wherein at least an inside surface of the wall of the recess is wetted with a flux.

17. (Currently amended) The connector of claim 1, wherein at least a region of the wall of the recess that is to be soldered, is silvered and/or tinned.

18. (Currently amended) The connector of claim 1 ~~3~~, wherein ~~an~~ the outer conductor of the coaxial cable is helically corrugated, with the wall of the recess being ~~formed as~~ defined by a helical profile that is at least partially complementary to the helically corrugated profile of the outer conductor of the coaxial cable, and wherein the solder reservoir extends over at least a portion of a length of the helical wall profile.

19. (Currently amended) The connector of claim 1, wherein the inner ~~connector~~ conductor of the connector is adapted to be soldered to the inner conductor of the coaxial cable.

20. (Currently amended) The connector of claim 19, wherein the inner ~~connector~~ conductor of the connector includes slots so as to be elastically deformable in the radial direction and at least one inner solder reservoir for soldering the inner ~~connector~~ conductor of the connector to the inner conductor of the coaxial cable.

21. (Original) The connector of claim 20, wherein the inner solder reservoir includes a solder wire ring provided with a flux.

22. (Currently amended) The connector of claim 1 ~~3~~, wherein the solder reservoir includes a solder wire ring provided with a flux.

23. (Currently amended) The connector of claim 8, wherein the at least one additional solder reservoir includes a solder wire ring provided with a flux.

24. (Currently amended) The connector of claim 11 ~~20~~, wherein the further solder reservoir includes a solder wire ring provided with a flux.

25. (Canceled)

AMENDMENTS TO THE DRAWINGS WITHOUT MARKINGS

The sheets containing Figs. 3 and 9 have been replaced.

REMARKS

The last Office Action of January 7, 2003 has been carefully considered. Reconsideration of the instant application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 1-25 are pending in the application. Claims 1, 4-11, 15-20, 22-24 have been amended. Claims 2, 3 and 25 have been canceled.

It is noted that the disclosure is objected to because of informalities.

It is noted that the drawings are objected to because of applicant's failure to show some reference numerals. Drawing proposals showing the required changes are submitted herewith together with a communication to the draftsman.

It is further noted that claims 2-18, 22-24 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 5,120,260 (hereinafter "Jackson").

Claims 3-5, 7-10, 12-19, 22-24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jackson in view of U.S. Pat. No. 4,144,404 (hereinafter "De Groef et al.").

Claims 12, 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jackson in view of De Groef et al., and further in view U.S. Pat. No. 5,576,675 (hereinafter "Oldfield.").

It is noted that claims 6 and 11 have not been rejected on any prior art. During a telephone conversation, the Examiner indicated allowability of claims 6 and 11 if rewritten in independent form to overcome the rejection under 35 U.S.C. §112 and to include all of the limitations of the base claim and any intervening claims.

OBJECTION TO THE DISCLOSURE

The specification has been amended to address the objections expressed by the examiner. These changes are self-explanatory and do not contain any new matter.

Withdrawal of the objection to the disclosure is thus respectfully requested.

OBJECTION TO THE DRAWING

Applicant submits herewith changes to Figs. 3 and 9. The sheet, which includes Fig. 3 and 4, replaces the original sheet including Figs. 3 and 4. The sheet, which includes Fig. 9, replaces the original sheet including Fig. 9. Reference label "10e" has been added in Fig. 3. Reference label "35" has been added in Fig. 9.

Reference label "14c" is clearly shown in Fig. 9. The description of Fig. 3 in the specification does not contain references to labels "35" and "14c".

Reference label "23" is not required in Fig. 6b since Fig. 6b shows the

See para 0054

situation after soldering (i.e., the solder wire ring 23 no longer exists). Instead, the molten and re-solidified solder has the reference numerals 22' and 23', respectively.

Withdrawal of the objection to the drawing is thus respectfully requested.

REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Applicants have amended claims 1, 4-11, 15-20, and 22-24 to address the rejection under 35 USC 112, second paragraph, and to correct other informalities. Claim 6 has been rewritten in independent form, as suggested by the Examiner, to include only those limitations of originally filed claim 6. Accordingly, applicant asserts that claim 2 has not been narrowed to trigger prosecution history estoppel.

Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is thus respectfully requested.

REJECTION UNDER 35 U.S.C. §102(b)

Claim 1 has been amended to include the subject matter of claims 2 and 3. The rejection of claims 1 and 2 under 35 USC 102(b) as being anticipated by Jackson has therefore become moot.

Withdrawal of the rejection under 35 U.S.C. §102(b) is thus respectfully requested.

REJECTION UNDER 35 U.S.C. §103(a)

The rejection of amended claim 1, which now includes the subject matter of canceled claims 2 and 3, as being unpatentable over Jackson in view of De Groef et al. is hereby traversed and reconsideration is respectfully requested in view of the remarks set forth below.

Claim 1, as amended herein, discloses a coaxial connector adapted to be soldered to a coaxial cable, and includes a connector header housing with a recess having a wall with slots so as to be elastic in a radial direction, wherein the recess can receive, contact and clamp an end portion of an outer conductor of the coaxial cable. The coaxial connector further includes an inner conductor for contacting an inner conductor of the coaxial cable, and a solder reservoir with solder disposed on an inside surface of the wall of the recess at least in a region of the wall of the recess corresponding to a prescribed position of a front edge of the end portion of the outer conductor of the coaxial cable. An inside diameter of the recess is equal to a smallest outside diameter of the outer conductor of the coaxial cable.

Jackson is cited in the office action as teaching an electrical connector for receiving a semirigid coaxial cable which includes, at the proximal end of the connector body, an annular sleeve inwardly tapered to a diameter smaller than the minimum manufactured diameter of the cable, and a plurality of relatively narrow slots axially defined in the sleeve so that, as the cable is inserted into the connector body toward its proximal end, it enters and contacts the sleeve which

diametrically expands at the slots to accommodate and firmly grasp the cable at the mating interface end of the connector. Jackson's connector is a solderless connector, with electrical contact between the sleeve and the outer conductor of the cable provided only by the sleeve having the slots. However, Jackson states that connectors can also be soldered to the cable, with the solder flowing into and filling the radial gap to create an electrically and mechanically stable structure.

De Groef et al. is cited in the office action as teaching the use of solder reservoirs for making connections between coaxial cables. De Groef et al. furthermore uses, for example, a braid to effect electrical connection between the outer conductors of the coaxial cable. A heat-recoverable outer tube is shrunk over the braid to assure electrical contact since the metallic braid will readily deform and contact the outer conductor. The braid can be impregnated with solder which will bond the braid to the outer conductor during the heat-shrink operation.

The present invention addresses the quite stringent requirements associated with the signal-to-intermodulation ratio so that coaxial cables have to be contacted directly at the marginal edge portion of the proximal end of the connector body. This is particularly difficult with cables having a large outer diameter. In addition, the electrical contact between the outer cable conductor and the outer conductor of the connector has to be uniform (i.e., no solder gaps). Applicant's connector combines *a wall with slots so as to be elastic in a radial direction, wherein the recess can receive, contact and clamp an end portion of an outer conductor of the coaxial cable*, with *a solder reservoir with solder disposed on an inside surface of the wall of the recess at least in a region of the wall of the*

recess corresponding to a prescribed position of a front edge of the end portion of the outer conductor of the coaxial cable, as recited in claim 1. The elastic wall sections not only aid with the insertion of the cable end into the connector body, but also distribute the solder uniformly from the solder reservoir across the gap due to the advantageous surface tension effect.

Applicant submits that Jackson replaces a solder connection with a clamped connection between the outer conductor of the connector and the outer conductor of the coaxial cable, and does not disclose, teach or suggest using clamping in combination with soldering. De Groef et al. connector requires "heat-recoverable sleeves" which shrink in diameter upon application of heat, and does not suggest a wall with slots that is elastic in a radial direction. Accordingly, there would be no motivation to combine De Groef et al. with Jackson to arrive at the invention, as recited in claim 1.

The rejection of amended claims 20 and 21 as being unpatentable over Jackson in view of De Groef et al. as applied to claim 19 and further in view of Oldfied is hereby traversed and reconsideration is respectfully requested in view of the remarks set forth below.

As discussed above, Jackson and De Groef et al. do not suggest using clamping in combination with soldering. Oldfied discloses a more axially resilient coaxial connection with a microwave device by providing sufficient axial pressure to maintain a constant impedance between the inner conductor and the microwave device, but does not suggest soldering the inner conductors in addition to clamping.

For the reasons stated above, Applicant respectfully requests that the rejection of claim 1 be withdrawn. The retained claims 4-24 depend from claim 1 and should be allowable for the same reasons that claim 1 is allowable.

CONCLUSION

Applicant believes that when the Examiner reconsiders the claims in the light of the above comments, he will agree that the invention is in no way properly met or anticipated or even suggested by any of the references however they are considered.

In view of the above presented remarks and amendments, it is respectfully submitted that all claims on file should be considered patentably differentiated over the art and should be allowed.

Applicant further submits a certified copy of the priority document under 35 U.S.C. §119(a)-(d).

Reconsideration and allowance of the present application are respectfully requested.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully requested that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. If the Examiner feels that it might be helpful in advancing this case by calling the undersigned, applicant

would greatly appreciate such a telephone interview.

Respectfully submitted,

By:_____
Henry M. Feiereisen
Agent For Applicant
Reg. No: 31,084

Date: March 27, 2003
350 Fifth Avenue
Suite 3220
New York, N.Y. 10118
(212)244-5500
HMF:WS:af